Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. - 10. (canceled)

11. (previously presented) An apparatus for processing an optical signal comprising:

an optical-to-electrical conversion module for receiving the optical signal and converting the optical signal into an electrical signal; and

an adaptive equalizer module coupled to the optical-to-electrical conversion module for performing equalization on the electrical signal to produce an equalized signal, the adaptive equalization module comprising:

i. an analog filter adapted to receive and filter the electrical signal to produce a filtered output according to at least one filter coefficient,

ii. an error generator adapted to receive the filtered output and generate an error signal from the filtered output according to an error function, and

iii. a controller adapted to receive the error signal and provide at least one control signal to the analog filter for adjusting the at least one filter coefficient, the controller further adapted to detect a relationship between a change in the at least one filter coefficient and a change in the error signal and adjust the at least one filter coefficient according to the relationship to minimize the error signal,

wherein the error function involves:

performing a first sign-removal operation on the filtered output to produce a first sign-removed signal;

generating a difference signal representing difference between the first sign-removed signal and a steady signal; and performing a second sign-removal operation on the difference signal to produce a second sign-removed signal;

outputting the second sign-removed signal as the error signal.

12. (original) The apparatus of claim 11 wherein the first sign-removal operation represents a squaring operation.

13. (original) The apparatus of claim 11 wherein the first sign-removal operation represents an absolute value operation.

14. (original) The apparatus of claim 13 wherein the absolute value operation is carried out by multiplying a delayed version of the filtered output with a amplitude-limited version of the filtered output.

15. (original) The apparatus of claim 14 wherein the amplitude-limited version of the filtered output is produced by processing the filtered output using a limiting amplifier.

16. (original) The apparatus of claim 11 wherein the second sign-removal operation represents a squaring operation.

17. (original) The apparatus of claim 11 wherein the second sign-removal operation represents an absolute value operation.

18. (original) The apparatus of claim 17 wherein the absolute value operation is carried out by multiplying a delayed version of the filtered output with a amplitude-limited version of the filtered output.

19. (original) The apparatus of claim 18 wherein the amplitude-limited version of the filtered output is produced by processing the filtered output using a limiting amplifier.

20. (original) The apparatus of claim 11 wherein the steady signal is fixed at a constant value.

21. (original) The apparatus of claim 1 wherein the error function operates on a clocked version of the filtered output.

22. (original) The apparatus of claim 1 wherein the error function operates on an un-clocked version of the filtered output.

23. (original) The apparatus of claim 1 wherein the at least one control signal is analog.

24. (original) The apparatus of claim 1 wherein the at least one control signal is digital.

25. - 37. (canceled)

38. (previously presented) A method for processing an optical signal comprising:
converting the optical signal into an electrical signal; and
performing equalization on the electrical signal to produce an equalized signal, the equalization performance step comprising:

i. filtering the electrical signal with an analog filter according to at least one filter coefficient to produce a filtered output,

ii. generating an error signal from the filtered output according to an error function,

iii. providing at least one control signal to the analog filter for adjusting the at least one filter coefficient,

iv. detecting a relationship between a change in the at least one filter coefficient and a change in the error signal, and

v. adjusting the at least one filter coefficient according to the relationship to minimize the error signal

wherein the error function involves:

performing a first sign-removal operation on the filtered output to produce a first sign-removed signal;

generating a difference signal representing difference between the first sign-removed signal and a steady signal; and

performing a second sign-removal operation on the difference signal to produce a second sign-removed signal;

outputting the second sign-removed signal as the error signal.

39. (original) The method of claim 38 wherein the first sign-removal operation represents a squaring operation.

40. (original) The method of claim 38 wherein the first sign-removal operation represents an absolute value operation.

41. (original) The method of claim 40 wherein the absolute value operation is carried out by multiplying a delayed version of the filtered output with a amplitude-limited version of the filtered output.

42. (original) The method of claim 41 wherein the amplitude-limited version of the filtered output is produced by processing the filtered output using a limiting amplifier.

43. (original) The method of claim 38 wherein the second sign-removal operation represents a squaring operation.

44. (original) The method of claim 38 wherein the second sign-removal operation represents an absolute value operation.

45. (original) The method of claim 44 wherein the absolute value operation is carried out by multiplying a delayed version of the filtered output with a amplitude-limited version of the filtered output.

46. (original) The method of claim 45 wherein the amplitude-limited version of the filtered output is produced by processing the filtered output using a limiting amplifier.

47. (original) The method of claim 38 wherein the steady signal is fixed at a constant value.

48. - 55. (canceled)